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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
BURCH, MELODY M	
ART UNIT	**PAPER NUMBER**
3683	

DATE MAILED: 12/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/603,551	CHECK ET AL.	
	Examiner	Art Unit	
	Melody M. Burch	3683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24 and 26-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-24,27,32 and 37* is/are rejected.

7)☒ Claim(s) *26,28-31,33-36 and 38* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 February 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. See B and C in figure 8 compared to B and C in figures 3 and 4 as shown elements "B" and "C" are used to designate different things in different graphs. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the situation in which if the vehicle is operating at a GVW rather than an LVW loading condition, as shown at decision diamond 128, the RDP term is then modified as described in the specification in lines 21-23 on pg. 18. Instead, figure 7 shows a situation in which if the vehicle is operating at LVW loading conditions, the RDP term is modified. A similar problem exists with the description in line 7 of pg. 20. Clarification is required. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing

sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore,

- the limitation wherein the RDP operation is inhibited if the function of rear brake pressure and vehicle acceleration indicate that the vehicle is operating at GVW as claimed in claim 31 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered;

- the limitation of providing RDP when a predetermined deceleration rate is exceeded during the braking event with the vehicle operating at LVW, and inhibiting RDP when the vehicle is operating at GVW as also claimed in claim 23 (the phrase was removed from claim 2, but not claim 23).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. In addition to Replacement Sheets containing the corrected drawing figure(s), applicant is required to submit a marked-up copy of each Replacement Sheet including annotations indicating the changes made to the previous version. The marked-up copy must be clearly labeled as "Annotated Marked-up Drawings" and must be presented in the amendment or remarks section that explains the change(s) to the drawings. See 37 CFR 1.121(d). Failure to timely submit the proposed drawing and marked-up copy will result in the abandonment of the application.

Specification

5. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the originally filed specification lacks proper antecedent basis for the term "rpc controller" recited in claim 14.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 13, 18, and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re: claim 18. The phrase "an ECU" in line 3 from the bottom is indefinite. It is unclear to the Examiner whether the ECU is intended to be the same or different from the RPC controller since the RPC controller lacks proper antecedent basis in the specification.

Re: claims 13 and 22. The phrase "available volume to a rear brake pressure rate" first claimed in line 3 of claim 13 is indefinite. A rear brake pressure *rate* does not have or receive an available volume as suggested by the claim language.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 5-9 and14-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Prior art figure 1 of the instant application.

Re: claims 5, 14. Prior art figure 1 shows a pump-less anti-lock brake apparatus for controlling the rotational speeds, during a braking cycle, of only the rear brakes of a vehicle having at least one front and one and rear wheel and front RF and rear brakes RR acting on the front and rear wheels respectively in response to a front and a rear brake pressure respectively, the apparatus comprising: a rear brake hydraulic circuit including a master cylinder 12 for supplying a volume of pressurized brake fluid to the rear brakes RR,LR during the braking cycle, a fluid storage element 22, and a rear brake pressure control apparatus 34,24,36,38,18,20,26 for controlling the rear brake circuit as a function of the rotational speed of at least one rear wheel via element 26 and the rear brake pressure via element 24.

Re: claims 6, 8, 15, and 17. Prior art figure 1 shows the RPC apparatus further including a rear brake pressure sensor 24 for sensing rear brake pressure at the rear brake and sending the signal to the rpc apparatus, and a speed sensor 26 operatively connected for sensing a speed of the at least one rear wheel and sending a rear wheel speed signal to the rpc apparatus. Examiner notes that the rear brake pressure is sensed in order to obtain a difference in pressure between the rear brake pressure and the pressure in the brake circuit 16.

Re: claims 7, 16. Prior art figure 1 shows the rpc apparatus including a normally open apply valve 18 having an inlet connected to the master cylinder 12 for receiving pressurized fluid therefrom and an outlet connected to the rear brakes, and a normally closed release valve 20 having an inlet connected to the rear brakes for receiving fluid therefrom and an outlet connected to the fluid receiving element 22.

Re: claims 9, 18. Prior art figure 1 shows the rpc apparatus including a hydraulic control unit 18,20,36,38 operatively connecting the master cylinder to the rear brakes and the fluid storage element for controlling fluid pressure applied to the rear brakes during the braking cycle and fluid flow to the fluid storage element, and an ECU 34 operatively connected to the HCU, the rear brake pressure sensor, and the rear wheel speed sensor, for controlling the HCU as a function of the rear brake pressure and the rotational speed of the at least one rear wheel.

10. Claims 5 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 6241326 to Ferguson et al.

Re: claims 5 and 14. Ferguson et al. show in figure 4 a pump-less anti-lock brake apparatus for controlling the rotational speeds, during a braking cycle, of only the rear brakes of a vehicle having at least one front and one and rear wheel and front 17a,b and rear brakes 20a,b acting on the front and rear wheels respectively in response to a front and a rear brake pressure respectively, the apparatus comprising: a rear brake hydraulic circuit including a master cylinder 14 for supplying a volume of pressurized brake fluid to the rear brakes 20a,b during the braking cycle, a fluid storage element 38, and a rear brake pressure control apparatus 31,40,41,pressure differential

switch for controlling the rear brake circuit as a function of the rotational speed of at least one rear wheel via element 41 and the rear brake pressure via the pressure differential switch.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 1-4, 23, 25, 32, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 3862781 to King et al. in view of Prior art figure 1 of the instant application.

Re: claims 1, 3. King et al. show in figure 1 a pump-less brake apparatus for controlling the rotational speeds, during a braking cycle, of only the rear brakes of a vehicle having at least one front and one and rear wheel and front 12, 14 and rear 16,18 brakes acting on the front and rear wheels respectively in response to a front and a rear brake pressure respectively, the apparatus comprising: a rear brake hydraulic circuit including a master cylinder 20 for supplying a volume of pressurized brake fluid to the rear brakes 16,18 during the braking cycle, a fluid storage element (the cylinder of one of the brakes or in another interpretation the brake booster disclosed in col. 2 line 26), and a rear brake pressure control apparatus 30,32,42,44,46,48 for controlling the rear brake circuit as a function of whether the vehicle is operating lightly loaded at a light

vehicle weight or heavily loaded at a gross vehicle weight as disclosed in col. 1 lines 42-59.

King et al. do not include the limitation of the brake apparatus being an anti-lock brake apparatus and do not include the limitation of controlling the rear brake circuit as a function of a rear brake pressure.

Prior art figure 1 teaches the use of a brake apparatus being an anti-lock brake apparatus and teaches the use of controlling the rear brake circuit as a function of a rear brake pressure via element 24.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the brake apparatus of King et al. to have been an antilock brake apparatus, as taught by Prior art figure 1, in order to provide a means of preventing accidents due to the application of excessive brake pressure during sudden, panic stops.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the brake apparatus of King et al. to have controlled the rear brake circuit as a function of a rear brake pressure via element 24, as taught by Prior art figure 1, in order to provide a means of adapting the braking capacity to the specific braking conditions of the vehicle for improved feel.

Re: claims 2, 4, 23, 32. King et al. show in figure 1 the limitation wherein the rear brake pressure control apparatus provides rear dynamic proportioning (particularly, proportioning through valve 30 as disclosed in col. 3 lines 49-51) when a predetermined deceleration rate is exceeded during the braking event with the vehicle operating at

LVW as disclosed in col. 3 lines 35-40, and inhibits RDP (particularly, proportioning through valve 30) when the vehicle is operating at GVW as disclosed in col. 4 lines 10-11.

Re: claims 25 and 37. King et al. disclose a method comprising controlling the rear brake circuit as a function of a volume available in the fluid storage device (particularly, in the interpretation in which the fluid storage device is a cylinder of one of the brakes) for receiving fluid supplied by the master cylinder during the braking cycle.

13. Claims 10, 11, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prior art figure 1 in view of King et al.

Re: claims 10 and 19. Prior art figure 1 describes the invention substantially as set forth above, but does not include the limitation of the rpc apparatus further determining whether the vehicle is operating in a LVW condition or GVW condition and controls the rear brake circuit as a function of whether the vehicle is operating in the LVW or GVW conditions.

King et al. teach the use of a an rpc apparatus determining whether a vehicle is operating in a LVW condition or GVW condition and controls a rear brake circuit as a function of whether the vehicle is operating in the LVW or GVW conditions as taught in col. 1 lines 42-59.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the apparatus of prior art figure 1 to have included a means of determining whether the vehicle is operating in a LVW condition or GVW condition and controlling the rear brake circuit as a function of whether the vehicle is

operating in the LVW or GVW conditions, as taught by King et al., in order to provide a means of adjusting the braking pressure output to more efficiently accommodate varying vehicle loads.

Re: claims 11 and 20. Prior art figure 1, as modified, teach in figure 1 of King et al. the limitation wherein the rpc apparatus determines whether the vehicle is operating in an LVW or GVW condition from a predetermined relationship of rear wheel acceleration (or negative acceleration by way of the deceleration switch 48) to rear brake pressure (by way of the pressure switch 46).

14. Claims 10-12, 19-21, 23-25, 27, 32, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ferguson et al. in view of King et al.

Re: claims 10, 19, 23-25, 32, and 37. Ferguson et al. describe the invention substantially as set forth above, but does not include the limitation of the rpc apparatus further determining whether the vehicle is operating in a LVW condition or GVW condition and controls the rear brake circuit as a function of whether the vehicle is operating in the LVW or GVW conditions.

King et al. teach the use of a an rpc apparatus determining whether a vehicle is operating in a LVW condition or GVW condition and controls a rear brake circuit as a function of whether the vehicle is operating in the LVW or GVW conditions as taught in col. 1 lines 42-59.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the apparatus of Ferguson et al. to have included a means of determining whether the vehicle is operating in a LVW condition or GVW

condition and controlling the rear brake circuit as a function of whether the vehicle is operating in the LVW or GVW conditions, as taught by King et al., in order to provide a means of adjusting the braking pressure output to more efficiently accommodate varying vehicle loads.

Re: claims 11 and 20. Ferguson et al., as modified, teach in figure 1 of King et al. the limitation wherein the rpc apparatus determines whether the vehicle is operating in an LVW or GVW condition from a predetermined relationship of rear wheel acceleration (or negative acceleration by way of the deceleration switch 48) to rear brake pressure (by way of the pressure switch 46).

Re: claims 12 and 21. Ferguson et al., as modified, teach in figure 10 of Ferguson et al. in block 120 the limitation wherein the rpc apparatus further controls the rear brakes as a function a road surface roughness determined from the rear wheel speed (by way of wheel slip calculations).

Re: claim 27. Ferguson et al., as modified, teach in figure the method of monitoring rear wheel speed via speed sensor 41 shown in figure 4 of Ferguson et al., determining a vehicle speed as a function on rear wheel speed (as shown in figure 6 block 72 vehicle deceleration is shown and in block 133 in figure 12 vehicle deceleration is integrated to obtain vehicle speed), and determining an RDP entry point as a function of the vehicle speed as shown in block 86 in figure 6 of Ferguson et al.

Allowable Subject Matter

15. Claims 26, 28-31, 33-36, and 38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. Claims 13 and 22 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

17. Applicant's arguments filed 10/3/05 have been fully considered but they are not persuasive.

With regards to the drawing objections, Examiner maintains that the issue discussed in paragraph 1 of the instant office action still exists with elements B and C. With regards to the objection to figure 7, Examiner maintains that the specification suggests that diamond 128 shows that if the vehicle is not operating at GVW (which means its operating at LVW), the RDP term **is not** modified. The drawings, on the other hand, show that if the vehicle is operating at LVW then the RDP term **is** modified.

With regards to the arguments that Prior art figure 1 discloses "a differential pressure switch...[that is] connected to sense the difference between the pressure in the rear brake circuit 16 at the inlet of the apply valve 18...and the pressure in the rear brakes" and, therefore, does not anticipate the claims, Examiner finds that the arguments are not persuasive. Examiner maintains that the differential pressure switch 24 of Prior art figure 1 senses rear brake pressure by virtue of its comparison to rear

brake circuit pressure. Since the brake apparatus of Prior art figure 1 is controlled as a function of the differential pressure switch which senses *rear brake pressure* by virtue of its comparison to rear brake circuit pressure, the Prior art figure 1 arrangement can properly be considered to control as a function of *rear brake pressure* and element 24 can properly be considered as a rear brake pressure sensor. This analysis also applies to the argument regarding the Ferguson reference, since the Ferguson reference includes a similar pressure differential switch.

With regards to the rear brake pressure sensor being connected in fluid communication with the outlet of the apply valve, Examiner notes that the fluid line extending from the right side of rear brake pressure sensor 24 is fluidly connected to the outlet of the of the apply valve 18 as shown in Prior art figure 1.

With regards to the King reference arguments, the rejection has been amended in light of Applicant's changes to the claim language. Also with regards to the fluid storage device, Examiner notes that in one interpretation the fluid storage device is the cylinder of the one of the brakes. Clearly, the amount of fluid in the cylinder of the brake controls the amount of generated brake pressure in the brake circuit, as broadly recited.

With regards to the arguments with respect to claim 23, Ferguson discloses in col. 5 lines 53-65 a level of dynamic proportioning. Therefore, Ferguson discloses rear dynamic proportioning.

Accordingly, the rejections have been maintained.

Conclusion

18. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melody M. Burch whose telephone number is 571-272-7114. The examiner can normally be reached on Monday-Friday (6:30 AM-3:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James McClellan can be reached on 571-272-6786. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mmb
November 30, 2005
Melody M. Burch
11/30/05